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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/248,392	02/12/1999	HUBERTUS ALEXANDER SPAEPEN	GB97/023	8699

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EXAMINER

KUHAR, ANTHONY J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 06/10/2003

26

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/248,392

Applicant(s)

SPAEPEN, HUBERTUS
ALEXANDER

Examiner

Anthony J Kuhar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/14/03 in paper no. 25.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Response to Arguments

Applicant's arguments, see paper no. 25, filed 5/14/03, with respect to the rejection of claims 1-12, 19, and 22 over WO 96/23728 or FI 60183 B or Laine, "Manufacture of Precipitated Calcium Carbonate", each in view of Bungler '500 and with respect to the rejection of claims 1-22 over the above rejection in view of EP 0604095 A1 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, a new ground(s) of rejection is made upon further consideration of the art.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 20-22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "calcium ion source" is new matter in claims 1, 20, 21, and 22. It appears -- calcium ions -- was intended since it is the calcium ions which react according to the instant specification on page 9.

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Claims 1 and 20-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for calcium hydroxide and slaked calcium oxide, does not reasonably provide enablement for any "calcium ion source". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Recitation of a specie does not provide support for a genus.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosin' 160.

Kosin et al discloses a carbonation process for producing calcium carbonate from calcium hydroxide derived from limestone which provides improved utilization of the

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carbon dioxide gas for the carbonation process (see col. 3, ln. 12-16). An aqueous slurry of calcium hydroxide is continuously recirculated. Carbon dioxide gas is injected at a turbulent area in the recirculating stream, providing intimate mixing. Carbon dioxide utilization in the final product approaches 100% (see col. 3, ln. 54-60). Col. 3, ln. 64-68 teaches there is at least one in-line mixer downstream of where the carbon dioxide is injected. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to select the portion of the prior art's range of one or more in-line mixers which is within the range of applicant's claims of 4 to 7 in-line mixers because it has been held to be obvious to select a value in a known range by optimization for the best results, see *In re Boesch*, 205 USPQ 215.

Kosin '160 does not disclose that the aqueous suspension or the carbon dioxide enter the first of the series of mixers at a pressure of 150 kpa to 500 kpa or that the hydraulic pressure falls as it passes through the series of the static in-line mixtures; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize pressure at the first static mixer to provide fast reaction kinetics and to provide sufficient flow through the series of in-line mixers. It is also well known in the art that hydraulic pressure falls as it flows through piping, mixers, conduits, bends, etc.

The process of Kosin '160 appears to be a semi-continuous process since carbon dioxide is injected into a flow of slurried calcium hydroxide before at least one in-line mixer. It appears that calcium carbonate is formed continuously as the carbon dioxide passes through at least one in-line mixer. The calcium carbonate which forms on the surfaces of the calcium hydroxide is extracted from the channel and sent to a tank (see

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column 4, lines 42-52). Kosin '160 ceases circulation of the suspension of calcium hydroxide and injection of carbon dioxide in order to agitate the calcium hydroxide slurry in the tank having calcium carbonate coated thereon. This process removes the calcium carbonate component and exposes new surfaces of calcium hydroxide for further circulation and reaction. Thus, the process of Kosin '160 is actually semi-continuous with respect to the actual production of calcium carbonate using calcium hydroxide as encompassed by applicant's claims and is a batch process with respect to the additional steps that Kosin '160 needs in order reuse the calcium hydroxide slurry for further reaction.

Kosin '160 does not teach that carbon dioxide is independently supplied to each mixing site from a common source or using independent pressure control; however, it would have been obvious to one of ordinary skill in the art to do so in view of good process control technique since independent supply of carbon dioxide to each mixing site would result in better controlling the rate at which calcium carbonate product is produced.

Claims 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosin '160 as applied to claims 1-12 and 22 above, and further in view of EP 604,095 A1.

The rejection of claims 1-12 and 22 over Kosin '160 is applied herein. Kosin '160 does not disclose that the aqueous suspension includes non-consumable solids such as fibers or particles.

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However, EP 604,095 A1 teaches an aqueous suspension of particulate waste material, which comprises the step of precipitating an alkaline earth metal carbonate in the said aqueous suspension of the particulate material whereby the said particulate material present at the start of the process becomes entrained in the alkaline earth metal carbonate precipitate (see abstract). The aggregated product of such a process, which have advantageous properties when used in paper making or paper coating, or when used as a filler or extender for paints, plastics compositions, and the like. The waste material is by-products of wet-mineral refining processes and waste waters from paper mills (see page 2, lines 1-3). The aqueous suspension is preferably dilute, which contains no more than about 20% by weight of the dry particulate material based on a dry weight basis, more preferably less than 10% by weight thereof (see page 3, lines 4-7). The particulate material is an industrial by-product such as finely divided kandite clay mineral such as kaolin, a smectite clay such as bentonite, montmorillonite, saponite, hectorite or beidellite, and paper mill (see page 3, lines 8-11). The alkaline earth metal is preferably calcium carbonate. The alkaline earth metal carbonate precipitate may be formed by introducing into the suspension of the particulate mineral a source of alkaline earth metal ions and a source of carbonate ions. This will form the desired precipitate of alkaline earth metal carbonate insitu which will entrain the particulate mineral (page 3, lines 26-30). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use non-consumable solids, such as fibers or particles, in the process of Kosin because EP 604 095 A1 teaches that the aggregated product, such as calcium carbonate, of such a process would have advantageous properties when used in paper making or paper coating, or when used as a filler or extender for paints, plastics

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compositions, and the like, and EP '095 suggests that such non-consumable solids may be employed in a process that precipitates calcium carbonate using a source of carbonate ions and alkaline earth metal ions, which applicant provides using carbon dioxide and a calcium hydroxide slurry.

Response to Arguments

Applicant's arguments filed 5/14/03 with respect to the 35 U.S.C. 112, 1st paragraph rejection of claims 1 and 20-22 have been fully considered but they are not persuasive. Applicant argues that one of ordinary skill in the art would recognize that calcium ions come from a source. Applicant further points to examples where calcium hydroxide or slaked calcium oxide is used as the calcium ion source. However, examiner points out there are many other sources of calcium ions which are not calcium hydroxide or slaked calcium oxide. Thus, there is not support for the genus of "calcium ion source" by using the species of slaked calcium oxide or calcium hydroxide.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J Kuhar whose telephone number is 703-305-7095. The examiner can normally be reached on 8:45 am - 5:15 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

AK

AK
June 9, 2003


**STEVEN BOS
PRIMARY EXAMINER
GROUP 1100**